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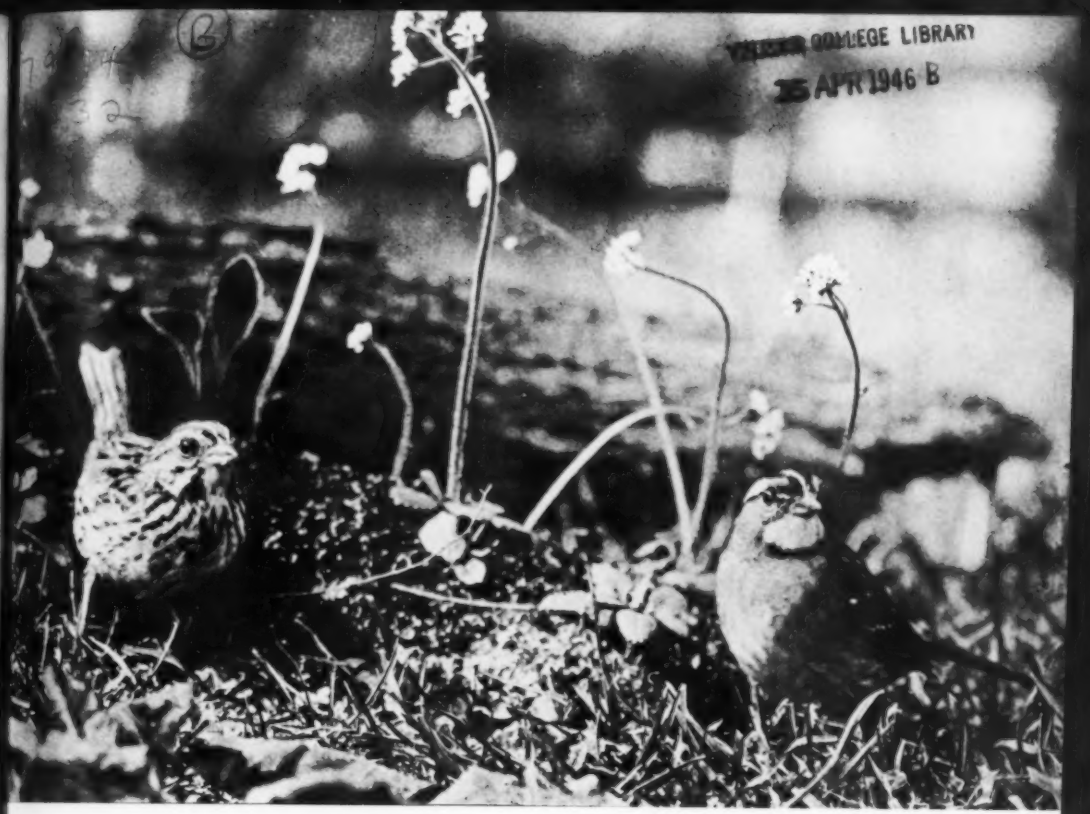

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Arbor and Wild Life Day Issue

BULLETIN TO THE SCHOOLS

March 1946

VOLUME 32
NUMBER 7

THE UNIVERSITY OF THE STATE OF NEW YORK

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COVER PICTURE: Song Sparrow and White-Throated Sparrow.
Photograph by Arthur A. Allen

THE UNIVERSITY OF THE STATE OF NEW YORK
BULLETIN TO THE SCHOOLS

Issued monthly during the school year by the State Education Department

CHARLES F. PROBES, *Editor* MARION E. BOZZONE, *Assistant*

This bulletin is sent without charge to all schools and educational institutions of the State. To others it will be mailed postpaid for 50 cents a year, 10 cents for single copies.

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UNIVERSITY OF THE STATE OF NEW YORK PRESS

The University of the State of New York
Bulletin to the Schools

VOLUME 32 MARCH 1946 NUMBER 7

Bird, Arbor and Wild Life Days

BIRDS IN SUMMER

Mary Howitt

How pleasant the life of a bird must be,
Flitting about in each leafy tree;
In the leafy trees so broad and tall,
Like a green and beautiful palace hall
With its airy chambers light and boon,
That open to sun, and stars, and moon,
That open unto the bright blue sky
And the frolicsome winds as they wander by!

They have left their nests in the forest bough,
Those homes of delight they need not now,
And the young and the old they wander out
And traverse their green world round about;
Hark! hark! at the top of this leafy hall
How one to the other they lovingly call;
"Come up! come up!" they seem to say,
"Where the topmost twigs in the breezes sway;

"Come up! come up! for the world is fair
Where the merry leaves dance in the summer air."
And the birds below give back the cry,
"We come! we come! to the branches high!"
How pleasant the life of a bird must be,
Flitting about in a leafy tree!
And away through the air what joy to go;
And to look on the bright green earth below!

I have the honor to designate April 12th as Bird Day and April 26th, May 3d or May 10th as Arbor and Wild Life Day in accordance with the convenience of the locality.

George D. Stoddard

Commissioner of Education

Arbor Day Planning

FRANK C. GILSON
Consulting Architect
Division of School Buildings and Grounds
State Education Department

Arbor Day planning accents the importance of artistic improvement of school properties

THE ORIGINAL OBJECTIVES of Arbor Day are now almost fulfilled. The purpose of the first Arbor Day, "to urge upon the people of the State the vital importance of tree planting," and "to observe it by planting forest, fruit or ornamental trees," has been accomplished state by state. Two generations of school children, reminded each year by a date set apart for explanation of the needs, demonstration and practical application in the actual planting of trees and shrubs, have made us tree-conscious. Reforestation on state-wide and national scale is a direct result of the education in the preservation and conservation of natural resources, and Arbor Day has motivated this interest through our schools.

Arbor Day originated in Nebraska. The 10th day of April 1872, was so designated by the State Board of Agriculture. Prizes were given to encourage the planting of trees, and over a million trees were planted the first Arbor Day. In 1874 the second Wednesday of April was "designated, dedicated and set apart as Arbor Day for the State of Nebraska" by proclamation of the governor. Its observance quickly spread to other states and territories. New York State adopted Arbor Day by legal provision in 1888. Since then thousands of trees have been planted each year. Grant Wood has caught the spirit of earlier Arbor Day observances in his painting reproduced on the inside back cover.

The purpose and meaning of Arbor Day have been expanded to include the study and appreciation of bird life, of the need for wild life refuge, of development of forest and park reserves. These objectives have enlisted the support of local and national organizations and have now gained the favor of legislators. Many of the leaders learned their first lessons in conservation in our elementary schools on Arbor Day.

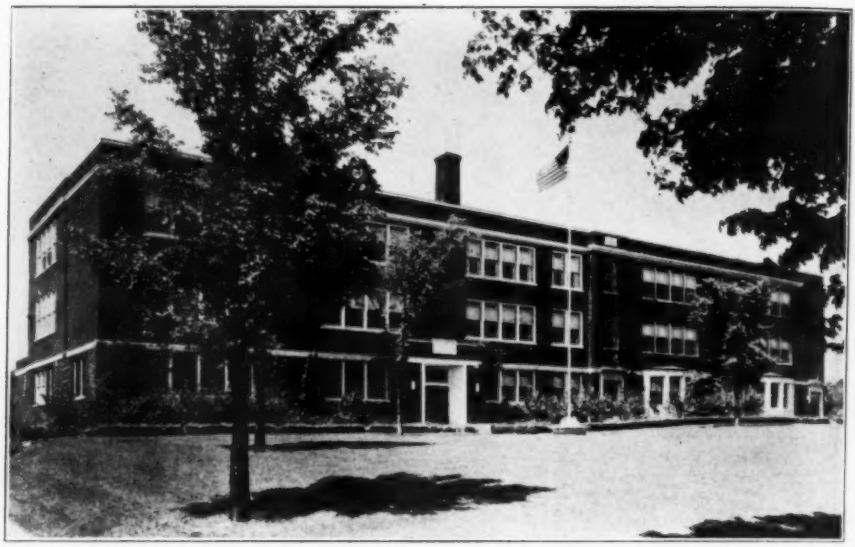
The usual observance of Arbor and Wild Life Day in New York State schools includes a practical application or project. This project may be planting a single tree or ivy, building a rock garden, foundation planting or in some cases reforestation on a small scale.

The school building and site either benefit or suffer from these spasmodic although well-intended efforts. Any attempt at "beautification" of a school building or site is foolhardy without a comprehensive landscape plan for the full and future utilization of a school site. Thoughtless, haphazard planting of trees and shrubs is often wasted effort, an obstacle to progressive and orderly extension of the building or recreational facilities. The sentimental value of a beautiful maple may perpetuate a poor building plan by blocking a building addition or necessitating a compromise arrangement. Trees planted too close to a building may grow to produce too much shade, clog drains and sewers, or if located close to walks and drives, encroach upon these avenues of access. Foundation planting often grows too large, becoming detrimental to both building structure and appearance.

Photograph by Sigurd Fischer; Frederic P. Wiedersum, architect

Wellington C. Mepham High School, Bellmore, An Example of Formal Foundation Planting at Its Best

In recent years school building sites are required to be adequate for the enrolment and type of school. The average central school building in New York State with an enrolment of 600 pupils should be situated on a site of not less than 12 acres,



Red Creek Central School, an Example of a Plain Building Improved with Trees and Foundation Planting

of which at least eight acres should be fairly level and adapted for development into play and recreational areas. Even the one-room school should have at least one acre of land available for play. Careful planning attains the fullest utilization of these sites.

To plant well, plan first. The following procedures should avoid the faults of haphazard, casual and indifferent ground improvement.

1 Have a plan, prepared by an expert, a landscape architect, preferably, or nurseryman, working in conjunction with the Division of School Buildings and Grounds, State Education Department.

2 Study of the location of the building, bus garage, walks and drives, athletic and play fields to provide for future development and future building extension. When this is done, landscaping plans can be prepared utilizing natural contours, seeded areas and existing trees, streams and wooded areas.

With the end of the war many communities are considering war memorials which are intended to be beautiful and permanently useful. These memorials may be athletic fields, stadiums, swimming pools and grounds development projects, many of which may be directly related to purposes of Arbor and Wild Life Day.

Arbor and Wild Life Day plans may include a long-range scheme for the physical and artistic improvement and development of school properties, apportioning each project to various groups or organizations based upon the most urgent needs and the ability of each to finance and carry out the work. Each Arbor Day program could include plans for the next year and undertake the grounds improvement for the current year. All of these projects should be a part of a master plan.

The Division of School Buildings and Grounds looks forward to more planning of site development projects during the next few years with the added stimulus of many new buildings, and increased interest in physical education and war memorials which encourage physical fitness and seek to improve the esthetic surroundings of school buildings.

Original Site of Montclair Garden Theater

Starrett and Van Vleck, architects

Amphitheater of Montclair Garden Theater as Developed by Inspired Planning

Arbor and Wild Life Day in Elementary Schools

H. GEORGE MURPHY

Supervisor, Bureau of Curriculum Development
Division of Elementary Education
State Education Department

: : : : : :

BOYS AND GIRLS of all ages are fundamentally interested in all phases of science. Their natural environment is to them a treasure house and workshop. They are interested in things that are alive. They like to watch things crawl, drink, eat, run, fly, swim, hop, fight, dig and grow. They want to know the reasons for this ceaseless activity. They can appreciate the natural beauty in their natural environment and they can, in this day of realism, understand the economic value and social usefulness of the many aspects of this environment. Modern teachers are capitalizing on these interests of children and utilizing this opportunity for simultaneously serving a social purpose and providing school experiences that offer personal satisfaction to their children. The area of living things is rich in such opportunities. Particularly worth-while, in this season of the year, are experiences that deal with trees and wild life.

The Arbor and Wild Life Day programs which the law requires the schools to give in celebration of these special days should result from many activities that have been in progress all year — certainly for a period of several weeks prior to such a program — and which will continue for weeks afterward. The most practical observation centers in really doing something about conservation — not just talking about birds, animals and trees, or reciting poems and giving plays, although the schools should and will do that, too.

An observance of Arbor and Wild Life Day is suggested that will be an integrated part of the regular school program

In the schools of the State experiences being provided in these areas are many and varied. Among them are the following:

1 Field excursions through woods, fields and brushland to discover animal tracks, animal homes, bird nests and other signs of wild life

2 Photographing birds and animals

3 Developing and maintaining a science corner in the classroom

4 Watching a bird build a nest; reporting on daily progress

5 Building birdhouses, feeding stations and a bird bath

6 Making plaster casts of animal tracks

7 Providing, in season, nest-building materials for birds, such as yarns, bits of cloth, string, cotton, hair and other odds and ends

8 Observing ant hills; setting up an ant colony in the classroom

9 Cat-proofing trees with metal guards

10 Setting up a balanced aquarium or a terrarium in the classroom

11 Maintaining feeding stations. Among the foods found attractive by birds are dried sunflower seeds, rolled oats, scraps from the table, bread crumbs and suet as winter food for insect eaters.

Courtesy Buffalo Museum of Science

A Housing Project for Wrens at the Buffalo Museum of Science

12 Reporting and recording signs of spring

13 Constructing a window feeding tray for observation purposes

14 Developing a section of the school grounds as a small animal and bird "garden"

15 Selecting and developing an outdoor laboratory as suggested in Cornell Rural School Leaflet, Volume 39, Number 1

16 Visiting a natural science museum

17 Planting trees on unused land

18 Visiting a nursery

19 Building a nature trail with properly labeled trees, shrubs and animal homes

20 Planting shrubs and trees along highways and fencerows to serve as cover for birds and small animals

21 Cooperating in community forest planting and care

22 Making maple syrup and sugar

23 Collecting tree leaves, twigs, bark, samples of wood and seeds

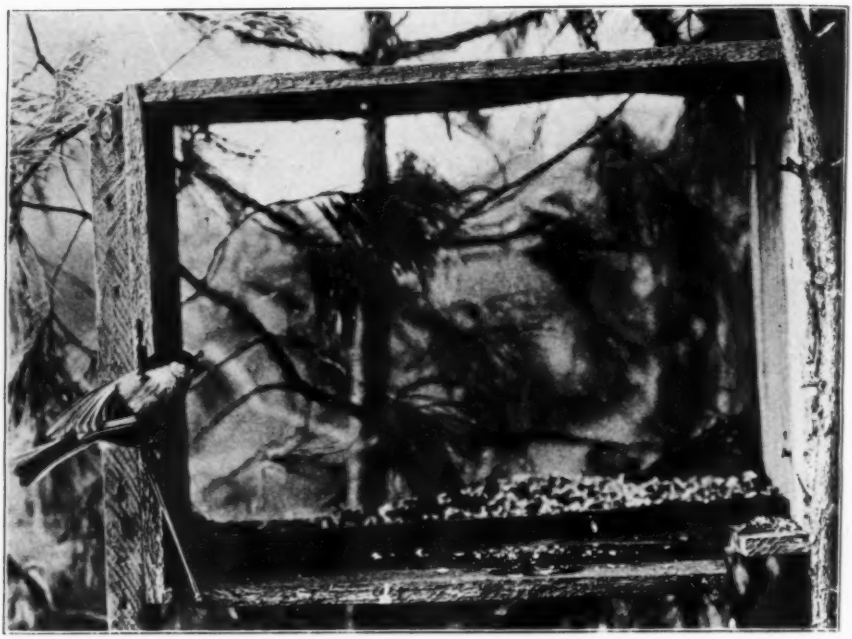
24 Making spatter, smoke and blueprints of leaves

25 Discussing the interrelatedness of wild life, forest, soil and water conservation

As a result of experiences of this kind worth-while learnings are taking place. Children are getting satisfaction from participating, exploring, and collecting, and are growing in their understanding of such concepts and generalizations as these:

1 There is wild life all around us, on the ground, in trees, in fields, on water and in and near our homes.

2 Birds and other animals eat different foods. Some eat plants. Some eat animals. Some eat insects. Some eat plants and animals.



Photograph by Arthur A. Allen

Chickadee at Feeding Station

3 Birds and other animals have different ways of moving about — walking, running, flying, swimming and jumping.

4 Birds have different ways of getting their food. Some use both beak and claws. Some hunt at night. Some catch their food in the air. Some migrate to secure their food.

5 Various species of wild life have different ways of escaping their enemies. Some fly or run away. Some fight. Some hide. Some are protected by their color.

6 Birds and animals live together at some times and not at others. Most birds migrate in flocks. Some birds and animals live together to rear their young. Some species are always found together in flocks, colonies, herds, packs etc.

7 Most birds and animals are beneficial to man. We can help them to live and to multiply.

8 Trees make their own food. Leaves need water, air and sunlight. Roots and stems help the leaves make food.

9 Tree seeds are scattered in different ways, some by the wind, some by animals, some in other ways. Scattered seeds can better find places to grow.

10 Trees that live together protect each other from the wind but compete with one another for sunlight.

11 Man uses trees for many purposes. Some of these are: lumber, maple syrup and sugar, shade, ornamentation, to protect watersheds and as homes for wild animals and birds

12 New York State uses 30 times more lumber than it produces.

13 We must plant and protect trees for our own good.

14 Soil erosion and floods result when forests are wastefully destroyed.

Such study and activity might well culminate in the Arbor and Wild Life

Day celebration. For example, in one country school the children assembled at the schoolhouse on Arbor Day dressed in work clothes and armed with spades and hoes, ready to plant in the school forest the 500 seedlings that their teacher had obtained from a near-by state nursery. Some of their fathers had come, too, to help with the digging of a contour drainage ditch that was needed. Before starting out for a day of hard work, the children conducted this very simple program as their opening exercises.

Reading: The Twenty-Fourth Psalm, by a fourth grade boy

Song by younger children: "Training the Trees." The Music Hour, Second Book. Silver

Reading: Problems of Conservation in Our Neighborhood (original composition by a sixth grade boy)

Recitation: The Pasture by Robert Frost, recited by a fifth grade girl

Reading: Famous Trees of History (original research and composition by the school's only seventh grade pupil)

Recording: Bird songs as recorded by Arthur A. Allen

Recitation: Salute to the Trees by Henry VanDyke, given by a sixth grade boy

Song: America the Beautiful by the entire school

Schools are taking advantage of Arbor and Wild Life Days to foster the type of education referred to in this discussion. On this basis then, the celebration of these special days takes on a new significance. Very often in the past this celebration consisted only of such activities as recitations and songs by children and a bird talk by a nature enthusiast or a tree-planting ceremony. Actually, much good was accomplished in this way but more and better child growth is resulting where schools make the celebration of these special days an active and integral part of the regular curriculum program. In these schools such a celebration often serves as an initiating or a culminating activity for some work being planned or being completed in social studies, or, as is more often the case, in the field of elementary science. Some schools use these days to set out birdhouses and feeding stations that are constructed by the children. Some plan activities like those suggested in the list above. Others conduct assembly programs with films on wild life or conservation subjects. Still others exhibit samples of children's work in pertinent areas. Whatever the means chosen, all are united in their desire to provide experiences whereby children can best grow in their ability to understand and make use of their natural environment.

Following are a few useful books selected with the help of Mrs Ruth Evans Babcock, library supervisor, Division of Elementary Education.

For Teachers

Comstock, A. B. Handbook of nature study; 24th ed. Comstock Pub. Co. 1939 $4

Bathurst, Effie. Curriculum content in conservation for elementary schools. Bulletin 1939, No. 14, U. S. Office of Education. 15c

——— Teaching conservation in elementary schools. Bulletin 1938, No. 14. U. S. Office of Education. 20c

Snedigar, Robert. Our small native animals; their habits and care. Random House. 1939 $2.50

For Children

Baxter, L. H. Boy bird house architecture. Bruce. 1920 $1 (4–9)

Brock, Emma L. Mr. Wren's house. Knopf. $1.25 (3–5)

Bronson, W. S. Chisel-tooth tribe. Harcourt. 1939. $2 (5–6)

——— Horns and antlers. Harcourt. 1942. $2 (4–6)

Cornell Rural School Leaflets. New York State College of Agriculture, Cornell University, Ithaca, N. Y.

Eaton, E. H. Birds of New York; 2d ed. N. Y. State Museum. 1914. 2v. $6 (ref.)

Gaer, Joseph. Men and trees. Harcourt. 1939. $1.25 (6–8)

[*Concluded on page 196*]

Visual Aids in Nature Study

WARD C. BOWEN

Chief, Bureau of Radio and Visual Aids
New York State Education Department

: : : : : :

SOME ONE has given us the motto "Study Nature, not books." This may be accepted as admonition and reminder. It is an admonition not to become armchair naturalists, content to study wild life from a cozy corner in the library. It is a reminder that a true understanding of Nature comes only through intimate, first-hand observation.

But Nature, in some of her manifestations, is frequently a "difficult" subject. Birds and animals are seldom cooperative; they rarely hold still for us while we conduct our investigations. In the case of the rarer or more furtive species, we must be thankful for an occasional, fleeting glimpse. To make identifications and to plug the gaps in our own meager observations, we need our books and our visual aids.

Photograph by State Conservation Department

"they rarely hold still . . ."

How visual aids supplement firsthand observations of Nature

In our northern clime, moreover, most of our birds desert us during the winter months; the wild flowers disappear; the woodchucks and other hibernating mammals, the turtles and other amphibians, hide away for a long "sleep." During the long winter months, then, our studies of trees and flowers and wild life would be largely suspended were it not for books and visual aids.

Many excellent visual aids are, in fact, between the covers of our books, in the form of drawings, paintings and photographs. Others are familiar to us in the form of lantern slides and motion pictures. And, finally, there is the whole gamut of museum materials and exhibits — mounted habitat groups, study skins, wax reproductions and all the rest.

Museums are treasure troves of visual aids to understanding Nature and wild life. In the midst of such treasure, the danger is that we shall be too greedy — that we shall want to see as much as possible in a limited time. The result is almost certain to be confusion rather than enlightenment.

One way to utilize museum materials to advantage is to seek out relationships, comparisons and contrasts. If we want to learn something about birds, let us study them by groups. For example, what are the features of beak, talons, wings and tail which characterize the hawks as a group? Within this general group, what differences serve to separate

Photograph by Guy A. Bailey

"What are the features of beak . . ."

the falcons from the Buteos? Through purposeful observations of this sort we find ourselves studying the mounted specimens in the museum, not merely looking at them.

"Still" pictures, whether photographs or drawings, are less realistic than mounted specimens, since they can give us only an imperfect illusion of roundness. Nevertheless, they can be of immense help in identifying the myriad forms about us.

Photograph by Guy A. Bailey

". . . and wings . . ."

Drawings or paintings by competent artists are often more helpful than photographs. The artist has this advantage over the photographer, that he can eliminate extraneous details and center attention on significant or "diagnostic" features. Study the paintings of Fuertes, Horsfall, Rungius and others, and note the skill with which, by composition and selection, they focus your attention upon the essentials. Perhaps we can cite no better examples of photographs and paintings than those in the New York State Museum memoirs Birds of New York and Wild Flowers of New York.

For some purposes, simple sketches are even more effective than photographs or finished paintings. As examples, note the diagrammatic sketches of birds by Roger Tory Petersen, so effective for quick field identification. In this connection, we wonder why teachers do not make greater use of blackboard sketches. It is not artistic ability, but skill in analysis that counts; a few strokes are all that are required to contrast the branching habit of an elm tree with that of an oak, or the beak of a finch with that of a nuthatch.

Motion pictures are often the most realistic aids to the study of birds and animals since restless, unceasing movement is characteristic of many species. Moreover, differences in manner of flight, for example, may be enough to differentiate species when the individuals are too far away for color patterns or other details to be seen. Just as at a distance we often distinguish one human acquaintance from another by posture or gait, so motion pictures help us to learn the distinguishing habits of our winged or four-legged friends of the wild.

If visual aids enable us to carry on our nature studies "out of season," they also enable us to go far afield. Few of us are able to travel widely in pursuit of our studies. Through pictures, however, we can acquire some degree of acquaintanceship with the animals and plants of any

"enable us to go far afield . . ."

part of the world. Through the magic window of the motion picture screen we can follow Allen into the swamps of Louisiana as he seeks out the few remaining ivory-billed woodpeckers; we can accompany Mawson to the Antarctic to visit the enormous colonies of penguins on the edge of the ice cap. Wherever men have gone with camera, brush or pen, we too can go, vicariously, through the medium of their pictorial records.

There is a third and most important service which pictorial aids perform in the study of wild life: we can substitute the collection of pictures for the collection of birds' eggs or rare plants or other trophies. Thus destruction of wild life is decreased and conservation is promoted. In many bookshops may be found back numbers of National Geographic, including special numbers on birds, animals and wild flowers, with splendid plates in black and white and in color. Back numbers of Nature Magazine, Bird Lore, Natural History and others are also to be found. At a few cents a copy, these magazines provide a wealth of material for the hobbyist or the teacher.

Finally, in the spirit of the motto, let us remind ourselves that visual aids merely assist us in our studies of Nature and wild life. No picture, no dried specimen in an herbarium, can give us a full appreciation of the fragile beauty of the harebell; we must see it clinging to a limestone ledge or adding a touch of color in a shady ravine. Really to know and appreciate the woodchuck, we need to watch him as he dines on clover shoots, to stalk him at the mouth of his burrow and to hear his defiant whistle as he dives for safety. Perhaps, then, we might amend our motto to read: "Study Nature *and* books — and use visual aids!"

"to stalk him at the mouth of his burrow . . ."

Conservation Pledge

Outdoor Life Magazine is sponsoring a contest, with $5000 in prizes, for the best Conservation Pledge, similar to the Pledge of Allegiance to the Flag, to be used by schools and civic and patriotic groups. Further details about the contest, which closes July 31st, may be secured by writing to the office of the magazine, 353 Fourth avenue, New York 10, N. Y.

The Stoner Bird Trip

MINNIE B. SCOTLAND

New York State College for Teachers, Albany

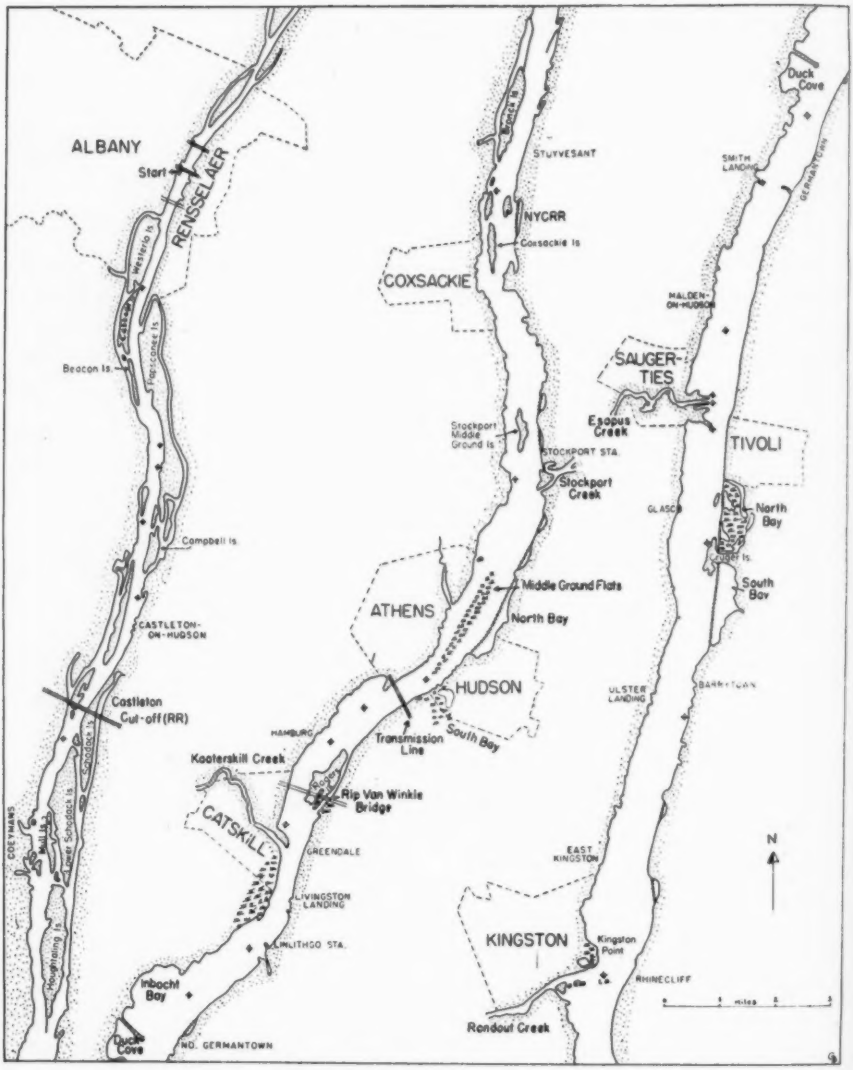
The annual boat trip on the Hudson river enables bird lovers to observe birds in marshes, lowlands and on the water

BIRD ENTHUSIASTS appreciate the "give and take" that prevails in their groups. Word of the arrival of the redpolls, or the location of the evening grosbeaks, or the appearance of a stray bufflehead on the Park lake is passed around quickly; and often, with much squeezing of time and effort, bird folk take the opportunity to see these birds. Bird clubs have as their purpose the encouragement of bird study, and in the exchange of "bird news" among their members they help to attain their goal.

The Schenectady Bird Club for years has conducted numerous field trips. By these a knowledge of birds and a need of conservation of bird life are gained. These bird trips are of many kinds. Some are short, others long. Some are on foot, others by some means of transportation. Some are through woods and over meadows, others through marshes and along streams. Some are to mountain heights at dawn, others to lowlands at twilight. But there is one type of bird trip that includes many features of those just mentioned. That is a boat trip. And the boat trip down the Hudson river from Albany to Kingston point is the one about which this article is written. For the Bird Club it ranks in importance with the annual Christmas census and the Memorial Day visit to the sand plains.

This annual trip on the Hudson River Day Line has been named by the Schenectady Bird Club "The Stoner Bird Trip" in honor of Dr Dayton Stoner, former State Zoologist of the New York State Museum. Doctor Stoner introduced his Schenectady Bird Club friends to the possibilities of excellent birding from the deck of the Hudson River Day Boat when he reported his observations of American egrets made from this vantage point. Doctor and Mrs Stoner made this trip to Kingston point and return several times each season. Likewise, since the summer of 1941, the members and friends of the Schenectady Bird Club have made counts covering these 48 miles of the Hudson river. The accompanying map shows towns, bridges, shore-line conditions, islands and even buoys in the river that aid the bird tabulator in locating the birds for his records. Inasmuch as changes in water level are caused by the tides there is increased interest in making comparisons of the bird life on the outgoing and the return trips.

Seventy-one species of birds have been recorded by observers taking this journey, with its stopover of an hour at Kingston point. Twenty-two water birds and 49 land birds make up this list. In numbers of individuals the great blue heron tops the whole group of water birds with a count of 98 on September 16, 1945. Of greater interest and a close second in numbers is the American egret with a record of 93 on September 2, 1942. There are always seen double-crested cormorants, common black ducks and herring gulls. Appearing usually in the lists are green herons, black-crowned night herons, Canada geese, mallards, baldpates, pintails, blue-winged teals, spotted sandpipers and ring-billed gulls. There is an occa-



Map of Stoner Bird Trip

sional reporting of a common loon, an American bittern, a green-winged teal, coot, killdeer, semipalmated sandpiper, Bonaparte's gull and a common tern.

Land birds are seen flying along the shore or venturing out over the river. A Bird Club member is not a little surprised to have ruby-throated hummingbirds fly by as he stands on the deck with bird glasses ready to focus on more distant birds. During the stopover at the park in Kingston point bird searchers add several birds to their lists. The hawks take over in variety of species, eight different

ones. The bald eagle can be depended upon to make a striking picture as he perches on a tall tree or soars over the boat. There is a record of 13 observed on September 16, 1945. The ospreys added up to 12 on a trip in 1944. Then, the sharp-shinned hawk, and the red-shouldered and red-tailed hawks, the broad-winged, marsh and sparrow hawks complete their group.

Among the more or less constant land birds in the compilations are the belted kingfishers and red-wings, chimney swifts and barn swallows, blue jays, crows and bronzed grackles, catbirds and robins, starlings and English sparrows, cedar waxwings, red-eyed vireos, goldfinches and song sparrows. Less frequent are the mourning doves, nighthawks, flickers, downy woodpeckers, kingbirds, crested flycatchers, phoebes, black-capped chickadees, black and white warblers, the yellow and Canada warblers, bobolinks, meadowlarks and cowbirds. There are unusual occurrences of such birds as the yellow-bellied sapsucker, the long-billed marsh wren, the brown thrasher, veery, bluebird, yellow-throated vireo, fish crow, pine warbler, American redstart and the chipping and white-throated sparrows.

These are the birds that are seen on the Stoner Bird Trip. What trip could be more inviting to those interested in birds? Certainly it affords nine hours of the best birding found anywhere. Teachers who have a love for birds and who wish to have their pupils catch an enthusiasm for bird study can find no better way than to take this trip. From the end of May through the middle of September the Hudson River Day Line plies its boats on one of the most beautiful rivers of the world. Why not plan to enjoy the birds this year by taking the Stoner Bird Trip?

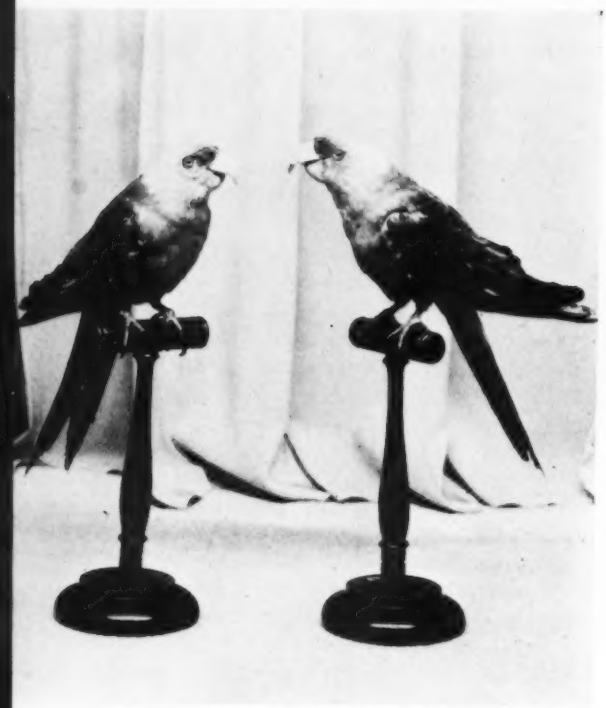
Verdi Burtch Dies

Verdi Burtch, well-known amateur ornithologist, died December 27, 1945, at his home in Branchport.

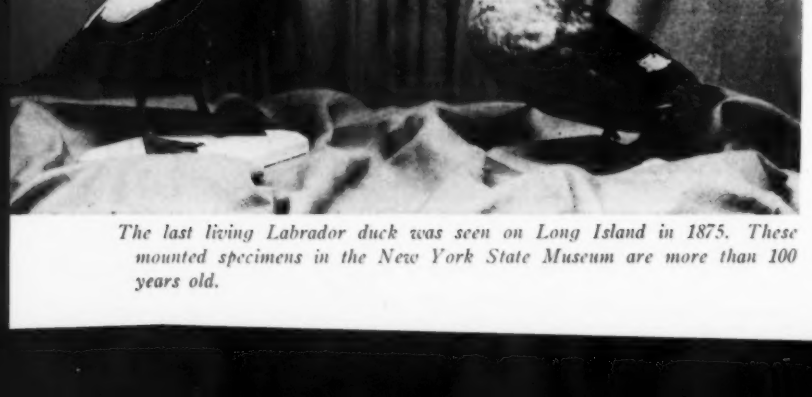
Born in Penn Yan December 25, 1868, Mr Burtch was interested in birds from the time he was a child. He was the first person to do bird banding in the Yates County area and received reports of birds bearing his bands from thousands of miles away. Mr Burtch was one of the few men in his community to recall having seen flocks of the now extinct passenger pigeon. His collection of birds' nests, eggs and mounted specimens was large and unique.

Mr Burtch contributed to many authoritative books on birds, including Elon H. Eaton's Birds of New York (Memoir 12 of the New York State Museum); Frank M. Chapman's Warblers of America; Gordon Alymar's Bird Flight; Life Histories of American Birds, published by the United States Museum. Bird photographs made by Mr Burtch were used in a study series of the Visual Instruction Division of the State Education Department, entitled Birds of New York State. He was also a contributor of articles to the BULLETIN TO THE SCHOOLS and many national magazines.

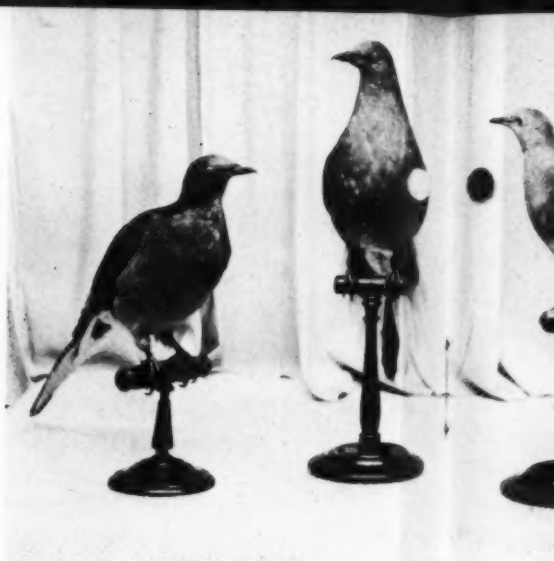
Mr Burtch was a member of the American Ornithologists' Union, the Wilson Ornithological Club, the Cooper Ornithological Club and the Izaak Walton League.



In 1795 the doomed Carolina parakeet was observed near Albany, N. Y. No living specimen has been seen anywhere in the world since 1904.



The last living Labrador duck was seen on Long Island in 1875. These mounted specimens in the New York State Museum are more than 100 years old.



There were billions of passenger pigeons in 1846. There are no pigeon was killed in 1908.

Rare and Extinc

W. J. SCHOONMAKER
Assistant State Zoologist

Photographs by KENNETH IRE
Department Photographer

WHEN THE WHITE MAN settled he found billions of birds and other wild game was the main source of settler, the trapper, prospector, surveyor a our great railroads.

Commercialism then replaced need. Ga opened, and as a token of thanks for their creatures were unreasonably slaughtered.

Billions of passenger pigeons, ducks, ge and various other species were killed for th Later millinery demands drew heavily upon keets and other birds which fitted into the of birds in breeding plumage were killed to demands while nestlings perished for want

In the West, hide hunters slaughtered m and after the spring hunt a rank odor sw scores of skinless carcasses rotted and dried killed spoiled before they could be skinn remains dotted the prairies.

Those days of ruthless slaughter are gon because there are no long great quantities billions of passenger pigeons, parakeets, La heath hens, *none* are here today. They are only priceless skins and mounted specimens glorious birds darkened New York's skies past.

There are none in 1946. The last wild passenger

The very rare trumpeter swan was nearly extinct but it is now slowly increasing in numbers. It is New York's largest waterfowl and weighs as much as 34 pounds.

xtinct Birds

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NNETH IRELAND,
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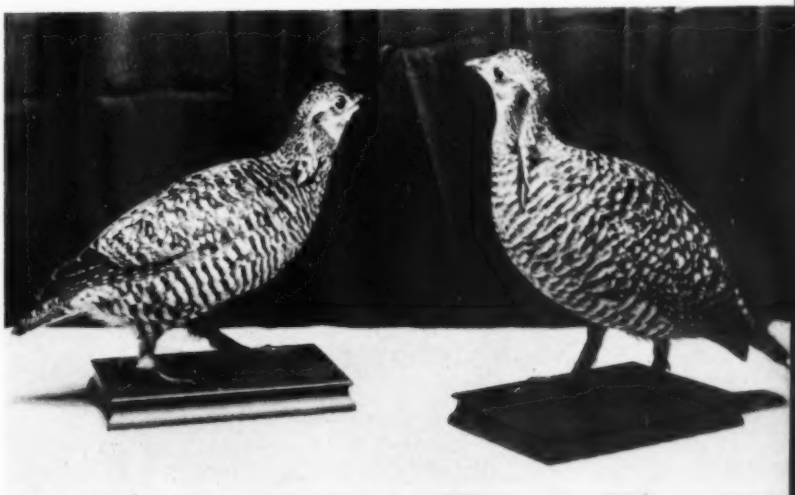

A living heath hen will never again be seen because the last one disappeared from the face of the earth in 1932.

State College of Forestry Develops New Methods of Using Wood

HARDY L. SHIRLEY
Assistant Dean

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The State College is making a major contribution to solving forestry problems and developing new uses of wood

AMERICA is rediscovering wood. This prosaic substance long taken for granted by people throughout the world has been gradually assuming a new place of importance in the economy of mankind. In its natural state wood serves a multitude of purposes. These vary from massive timbers to support bridges and buildings to the delicate handle on an artist's paint brush or a medium for sculpture.

The scarcity of other raw materials during the war caused the Americans to re-examine wood to determine to what extent it could be substituted for metals and other strategic materials. For many uses wood not only proved a good substitute, but it had desirable qualities often lacking in the conventional material. Where lightness, strength, resiliency and durability are required, wood has given an outstanding performance. But the more striking feature of this widened use of wood has been the discovery of new ways in which wood can be used.

The stressed skin principle, long applied in the construction of steel ships and metal aircraft, works equally well with wood. Sandwich construction in which layers of strong, durable wood are placed on either side of a light wood such as balsa add greatly to stiffness and strength while maintaining extreme lightness. The box beam is an application of the stressed skin feature to structural forms for aircraft spars and other structural members in which lightness is a major consideration.

Plywood, that ubiquitous product of western forest industries, has gained a tremendous new field of usefulness. The glue bonds are now made waterproof, the exterior laminae may be made fire-resistant or specially treated to resist weather. Long available in flat sheets or at most in simple curvature, plywood can now be molded to any desirable shape. This makes possible the construction of small boats and other products by molding veneer and ribs together into a single homogeneous product. Such boats are far lighter and stronger than it is possible to make by conventional methods. Through impregnation wood can be made to resist the attack of insects and fungi, can be made fire-resistant and can even be made plastic. Once plasticized, wood can be formed into all sorts of shapes and set in these new shapes permanently. Impregnation also makes possible eliminating most of the shrinking and swelling of wood which has been one of its chief weaknesses.

But even more striking than new uses of wood in its natural form are the many products that can be derived from wood through chemical treatment. Roofing felts, linoleum type floor coverings, wall board are some of the rougher products; fine bond papers, glassine paper and dissolving pulp for rayon viscose and nitrocellulose are also possible. The chemist is just beginning to unlock the secrets of

Equipment Used in the Preservative Treatment of Wood

cellulose and lignin. Already lignin plastics, vanillin and a host of new materials similar in properties to petroleum products can be made from lignin. These are in addition to the long familiar methyl-alcohol, acetic acid and wood tars. Ethyl alcohol and fodder yeasts are new developments from American and Canadian woods.

Long the national leader in manufacture of paper and paper products, New York is faced with losing this leadership. Some 69 pulp and paper plants closed during the period 1917–40, largely for lack of raw materials. Others have converted from general to specialty products.

In New York, as well as in the Nation as a whole, these new developments in wood use come at a time when our supplies of forest products have been heavily depleted through past use and abuse. We can not hope to realize the full potentialities of a new economy of wood unless good forestry is applied in the woods as well as good wood technology in the industrial plants. The growing scarcity of timber and the growing demands of new uses place a challenging problem before foresters and forest schools. The New York State College of Forestry recognizes such a challenge and is making plans to meet these new requirements as rapidly as possible. Here are some of the outstanding problems in New York forestry and what the College of Forestry is trying to do to meet its share of the obligations.

1 New York needs to size up its forest problem. This means that it must have a survey covering all the forest land, classifying it as to types and condition of forest, determining the rates of growth, the rate of depletion through cutting, fire, insects and disease, the possibilities of building up growth through reforestation of idle lands and through applying better practice in woods operations. To help meet these problems the college is offering new courses in forest surveying.

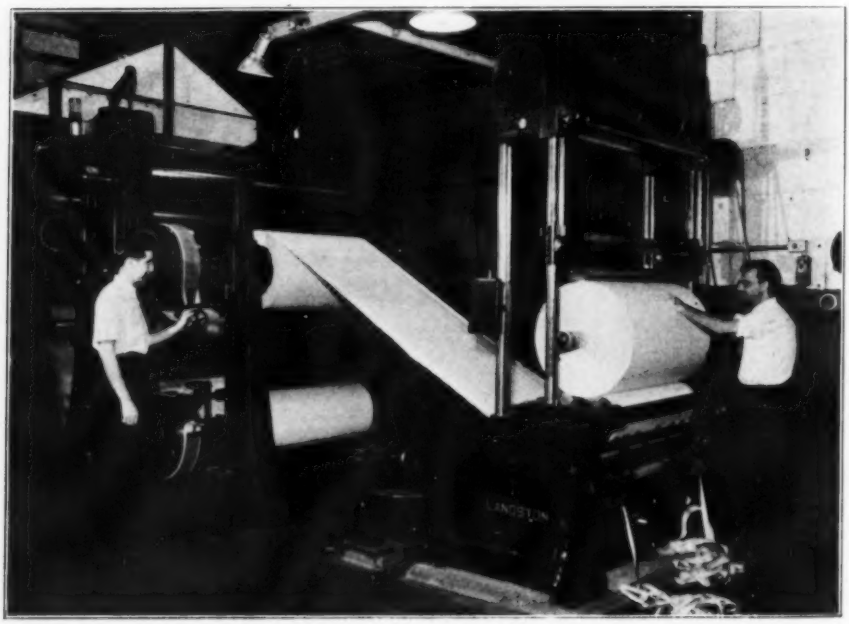
It is roughly estimated that the yield of New York's 11 million acres of com-

mercial forest land can be doubled by the application of the best modern silviculture. In some places owners are prevented from adopting this because of inaccessibility of the timber or its poor quality. Others are prevented because they do not have the information on the best modern practices. On all its properties the New York State College of Forestry not only is developing new silvicultural principles whereby yields can be greatly increased, but is also obtaining accurate information on costs so that it will be possible to determine what technics are practical for the private owner and what ones are not.

2 New York needs to develop principles of forest land classification to determine what lands within the State can be profitably managed by private owners and what lands must be in public ownership. The college has already made a substantial start on such studies and plans to expand this work in the future.

3 We must improve woods practice and the efficiency of woods labor. It has long been known that woods workers are prone to cling to traditional methods of doing things. As a result the productivity of woods labor has risen little during the past half-century. An important change began about five years ago with the introduction of new mechanized logging in the Northeast. It is through such mechanization properly applied that we can look for greater economy in woods operations and greater productivity for woods labor which will be necessary if compensation of woods labor is to keep pace with American standards.

4 Rural life throughout New York State and throughout the Nation as a whole is facing a serious challenge. It seems highly improbable that America will require indefinitely the high level of agricultural production that prevailed during the war. Agricultural products can be grown far more cheaply by the better farmers and with the best of modern farm equipment. More and more agricultural areas are likely to



Paper Being Manufactured on the Paper Machine at the State College of Forestry

become submarginal. To prevent many people being starved off the land some additional source of income must be available. Developing New York's forest land and forest industries may provide a substantial contribution to this problem. The College of Forestry is prepared to study typical rural areas in cooperation with agriculturists and others with a view toward meeting this question.

5 Through laboratory research and pilot plant tests new methods of processing wood and new applications of laboratory technics need to be developed. It is in this field that the College of Forestry is striving to make a major contribution. It already has a Pulp and Paper Laboratory that is equipped to carry out pilot plant tests. Two new buildings, an enlarged Pulp and Paper Laboratory and Plastics Laboratory and a Wood Products Laboratory, are planned for early construction. With these laboratories it will be possible for the college to keep abreast of the latest developments in wood chemistry, wood plastics, pulp and paper, plywood, veneer and other wood products and manufacturing processes. It will also be possible for the college to conduct many new experiments and tests. The new Plastics Laboratory will be equipped to mold plastics in which wood fiber and wood flour form the fillers and wood lignin and other products the plasticizing agent.

To meet the shortage of wood pulp in New York the College of Forestry is prepared to study methods of pulping hardwoods by the semichemical and groundwood processes. These methods give almost double the yield of conventional methods of pulping these species and yield a strong pulp capable of being bleached. Other problems of equal importance and equally difficult of solution will be undertaken in the new Pulp and Paper Laboratory.

Impregnating wood to make it fire resistant, to preserve it and to plasticize it will be one of the many processes to be carried out in the new Wood Products Laboratory. There will be a complete veneer laboratory, special equipment for curing glue lines in veneer and laminated members through electrostatic heating, the latest equipment for testing wood strength and wood properties and machinery for fabricating wood into its multitude of products.

6 Wood must bear the brunt in meeting America's housing needs, estimated to be in the neighborhood of 10 million family units. Almost everyone familiar with the housing problem has raised the question of modernizing construction principles so as to yield a better house for the money and steadier employment for workers in the construction industry. Housing and other light construction is actually one of the major industries of America, but it is typically small business and is handicapped by tradition, obsolescent codes and jurisdictional restrictions imposed by labor. These new methods in use of wood offer opportunities of factory fabrication, of panels and other structural members that should make possible steady employment, more efficient use of materials, a stronger and more substantial house and quicker erection. The College of Forestry is offering courses in light construction designed to train men in modern technics and modern methods to help raise American housing and the light construction industry to the standard which Americans have come to expect of the most progressive modern industries.

7 The biggest and most important job of all for the New York State College of Forestry is to train foresters and specialists in the use of wood. It is to this overall task of forestry education that the college is primarily dedicated. First of all we must provide sound, broad training for our undergraduate foresters whether they choose land management or wood utilization as their major field of interest.

We see before us an equally important task, from a public standpoint, that of providing highly specialized training to graduate students. Forestry has become far too complex to cover all subjects

within a four-year course. A good groundwork can be provided, but for men who wish to specialize in the administration of public and private forest lands, in modern methods of forest surveying, in the latest silvicultural technics, in manufacture of pulp, paper, pulp products and wood plastics, in gluing, lamination, in modern principles of building construction and in other fundamental forestry sciences upon which all new developments must depend, from one to three years of post-graduate training is essential.

During the next five years it is expected that graduate instruction at the College of Forestry will increase from an average of about 25 men a year to approximately 100. Graduate instruction is expensive and places heavy demands on the faculty and college equipment, but without the training of such specialists forestry and modern wood utilization can not go forward, and unless it provides such training the New York State College of Forestry can not hope to maintain its position of leadership among American colleges of forestry. It is through sound scholarship and research that men are developed who can build new and better industries to use American forest products and who can work out through democratic processes a forest economy in which private and public ownership work together to guarantee our State and Nation an abundant wood supply for all time to come.

Nesting Warblers

LOUISE C. BLAKE : : : : : :

The author observes the many warblers found at Joe Indian Lake in the Adirondacks

OCCASIONALLY an ornithologist or bird student while in the field on observation tours will have an experience that seems nothing short of miraculous. This happened to me one spring morning when for a half-hour I was surrounded by dozens of warblers which at times were within arm's length.

Several years ago I discovered that the vicinity of Joe Indian lake in the northern foothills of the Adirondacks was the nesting place for an unusual number of species of warblers. I also discovered that they arrived there about May 15th. On this particular morning I started out early to list the early arrivals. Walking about a mile to the outlet of the lake, I climbed down a ravine to the water's edge where it was very warm and sunny and the cold wind could not strike.

In a dense hemlock tree with limbs reaching to the ground, I heard familiar warbler calls, and cautiously moved into the branches of the tree, where I stood motionless. Dressed all in green, I was unnoticed by the birds. The thrill of a lifetime was mine as I stood there, for the tree was alive with what seemed like all the brilliantly colored warblers of the world. Parulas hopped from branch to branch within a foot of my eyes, while the baybreasted, magnolia, Canadian, black-throated blue and black-throated green, chestnut-sided, blackpole, the Tennessee and dozens of other species were there for me to study their wonderful coloring at close range. I remained until I could stand motionless no longer, and left as quietly as I came.

Later I studied the nest-building of some of these species, and was deeply interested in watching the Blackburnian warblers, both male and female, as they gathered the fine webbing of an old tent caterpillar's nest for construction of their nest in the tip of a tall evergreen tree. They made several trips for the webbing, stripping off small pieces at a time, until they had used most of the material. The nest was about 50 feet from the ground.

The mourning warblers are also very common in this section of the Adirondacks, although not so common in other localities of the North. Their nests are very neat little cups of soft twigs and dried, fine grasses, and lined softly with fine, black horsehair. They are built usually not more than two or three feet from the ground in a small evergreen tree. I have found them building usually in a balsam or spruce, placing the nest on a flat branch. The song of the mourning warbler differs considerably from that of other species and can be identified easily.

It is characteristic of the warbler family to build very neat, trim nests, and I have watched many species constructing their nests, which usually take about seven days to complete. The Maryland yellow-throat has nested each year in a dense hemlock within 20 feet from my cottage, while the redstart is also a close neighbor each year.

I discovered that many of these warblers were visiting my feeding station back of my cottage, and enjoying a meal of fine crumbs. This seemed unusual, as their food is supposed to consist mostly of insects. Also, regular summer-long visitors along with the warblers at my feeding station are white-throated sparrows that nest each year in the ferns bordering the porch of my cottage. During their incubation period, I have watched the male relieve the female at the nest while she flew to the feeding station for her lunch. When she returned to the nest there would be a soft conversation between the two as he left the eggs for her to cover again.

The black-and-white warbler, a tiny fellow that resembles a brown creeper in his habit of searching for his food, up and down and around the trunks of trees, while he repeats over and over his constant little song, unlike most warblers, seems to prefer building his nest near the ground. Having selected a spot behind some loosened bark of an old stump, I have watched a pair of these warblers while they arranged dried grasses and fine stems into a bulky little nest which was carefully and neatly lined with horsehair.

The magnolia warbler, which is not considered really common in this section of the Adirondacks, is seen each year in this particular locality, and I have observed yearly a few pairs that nest there. This species is one of the handsomest of the warbler family, with outstanding coloring of black, white and yellow. The nests I have found were in a hemlock, about eight feet from the ground, and also in a small balsam tree about four feet up. Put together in a careless manner, they were constructed of dried grasses and twigs, but well lined with horsehair forming a neat inside cup. The song of this particular species is hard to describe, as it seems to have a wide variation of notes.

About the most numerous of warblers in this locality are the myrtle and chestnut-sided, and their musical songs during the mating and incubation period are most delightful.

The chestnut-sided warblers in various years located their nests in a bush about four feet from the ground. They used small pieces of bark, dried grasses and plant down for construction, and lined it with fine grass and hair.

The myrtle warblers selected a like location for their nests but used a variety of materials including evergreen twigs, moss and dried leaves, and although they also used fine rootlets and hair for the lining. I have seen a few feathers added.

Most of the warblers disappear from this section by the first of September, as the nights at that time often become cold.

The Rough-Winged Swallow

S. R. LEONARD
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WHICH BIRDS are common and which are rare? Usually we think we know the common birds in our locality, yet sometimes we are surprised and pleased to become acquainted with one that we had considered rare or at least difficult to recognize. Perhaps we have learned more of its habits, or perhaps we have just learned to recognize it better; but also some birds we discover are changing their ways in adaptation to changing environment.

One bird that we have come to look for with pleasure in recent years is the rough-winged swallow. We do not say that it is common, and yet it is easy to find any day in May and June. The bird books mostly associate this swallow with the bank swallow, giving only brief references to the places where we now find it regularly nesting — about the many modern highway bridges having concrete abutments. Often in the past we have looked for the rough-winged among groups of swallows on telephone wires or flying about bank-nesting colonies, but with rather meager identifications.

Then a few years ago a friend showed us a pair nesting about a road bridge. That opened our eyes and sure enough we found them right here at home.

Last summer there were rough-winged swallows nesting at five of the six bridges near us. The concrete abutments of modern bridges usually have tile or pipe drains for the fills back of the concrete. Sometimes the drains go directly through the concrete to the face over the water. Sometimes the drains lead to one side. Since the drains are dry most of the time they offer round holes for nesting, better perhaps than bank holes, certainly all ready for use without the labor of excavating. Near one of our bridges is a projecting four-inch iron blow-off pipe from the city water main. That serves as one nesting site.

This is one of the birds which are adapting their ways to changing environment

At one of our bridges which seems to have only one good nesting drain we watched the hovering of five or six swallows just arrived last May. We presumed they were last year's family. But presently there was only one pair nesting in the available pipe. The others must have gone searching for vacancies at other bridges.

If you will stand near a highway bridge during May and June, perhaps in the morning or evening, you may see swallows flying back and forth and under the bridge. If you do, then look carefully for drain holes. The size of the bridge is unimportant. Two of our bridges are only about 15 feet of span. Others are 75 feet.

When the birds are feeding the nestlings is the best time to see them go in and out. But even when they are laying and incubating patience may reveal an occupied drain.

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Arbor Day Program

[*Concluded from page 181*]

Parker, B. M. Fishes. Harper. 1941. $1; Row Peterson. 28c pa. (4–6)

Van Coevering, Jack. Real boys and girls go birding. Lippincott. 1939 (4–6)

Weisgard, Leonard. Whose little bird am I? Thomas Y. Crowell Co. 1944. $1 (2–3)

The Barn Owl

LILLIAN C. STONER
New York State Museum

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Mrs Stoner reports on the bird which is commonly known as "monkey-faced"

SOME birds are known by rather queer common names. This is especially true of the barn owl, *Tyto alba pratincola* (Bonaparte). Because of its quaint face it is sometimes called "monkey-faced owl" or "monkey owl."

More than 525 species and subspecies of owls have been described in the world, all classified in two families; these differ mainly in structure rather than in habits. The barn owl is the only representative of the smaller family in North America. The other larger family of over 500 typical owls, some 55 of which have been recognized in North America, includes such well-known birds as the eastern screech, great horned, snowy and northern barred owls.

Two birds, namely the barn and snowy owl, have had the vernacular name of "white owl" as both are whitish in appearance. The size and degree of whiteness along with other visible markings, however, differentiate them. The smaller barn owl, which is darker and more yellowish, averages 18 inches in length while the snowy owl is about 25 inches long and appears almost pure white when seen at a distance.

Tips of feathers of a buffy-brown or rufous color form a narrow margin or sort of ruff which outlines, rather distinctly, the white triangular or heart-shaped face of the barn owl with its two small black eyes. This bird's peculiar physiognomy, more or less crouching posture on a beam in a barn or on a limb of a tree and melancholy cry have given it an odd reputation as well as a queer vernacular name of "monkey-faced"; newspaper accounts have even gone so far as to call it half bird and half monkey.

Photograph by Guy Bartlett

Young Barn Owl

Since the barn owl is a rather rare resident in upstate New York I was pleased to have the opportunity of observing one last fall both with and without field glasses. Mrs Herman Forkel, who resides at Slingerlands, about six miles from Albany, telephoned me on October 19, 1945, that on the previous evening she and her husband had noticed two odd-looking owls flying about inside their barn and that one was still there at 10 o'clock in the morning. I drove out immediately. As soon as we stepped into the barn we

could see plainly this queer bird as it alighted on a large wooden beam near the roof and peered down at us. There was good light inside the building from the two high windows and from the large open doorway. The frightened bird flew back and forth in the upper part of the barn in its attempt to escape, but it could not find the half-opened high window by which it and the escaped mate had probably entered the building.

As the owl rested on the beam from time to time and looked at us, the name "monkey-faced" seemed particularly appropriate. We felt sure that the bird could see us in the bright sunlight as it faced us every time it perched and appeared to watch us intently. It is well known that owls can not roll their eyeballs but must turn their heads to watch their possible enemy or prey. Contrary to popular belief, they can see in daylight. As evidence of this, we noticed that the owl did not collide with framework in the well-lighted upper inclosure of the building when it was flying from side to side. Usually this species remains quiet and hidden during the day as it is nocturnal in habit and secures food at twilight or in the night.

It did not take the imprisoned owl long to escape after it was left alone. It evidently joined the other bird previously seen or another owl for a pair remained near for some time; the residents heard queer calls at night in the elms and willows not far from the house and also caught glimpses of a couple of birds of this size flying back and forth between these trees on several evenings. The willows probably provided a hiding place for mice.

Owls which enjoy a diet of mice and rats and other small animals are beneficial to farmers. They often crush the bones of their prey and then swallow the animal whole. The unedible fur and bones are disgorged later as small balls that are called pellets. When these pellets are examined, determination of the nature of much of their food is certain.

Photograph by Allen Frost

Young Northern Barred Owls

During November and December, my friend's husband observed these birds about the farm on several occasions. One day, in the week before Christmas, Mr Forkel, who had learned to know the peculiar low billowy flight of this owl, reported seeing one swoop down in a near-by field to within a couple of feet of the ground in an attempt to catch a rabbit. An electrician working on the place, on December 26th, noticed a bird of this size trying to surprise the full-grown household kitten, but neither attack was successful. Whether this latter was a barn owl or the larger snowy owl, which was prevalent during the past winter, still remains an uncertainty as not often are barn owls reported seeking animals of this size for their prey.

One instance was noted about 30 miles from Albany in the summer of 1933. Guy Bartlett of Schenectady reported that five barn owls were reared in the top of a silo near Amsterdam. Two of these became rather tame and would allow one man to feed them such choice bits as mice, English sparrows and meat scraps when they returned to the farmyard at night. The farmer told of seeing one of these

Courtesy Bureau of Radio and Visual Aids

Adult Barn Owl

five birds pursue, catch and eat a cat, and reported that on another date he had seen a barn owl try to catch another cat.

Apparently the barn owl has either changed its status in the capital district and perhaps in the entire State or else more ornithologists are keeping better records of its occurrence.

Judd (1907), in Birds of Albany County, who had never observed this bird up to this time, called it an extremely rare permanent resident in Albany county.

Eaton (1914), in volume II of Birds of New York, in listing a total of 34 records for the State from 1873 to 1903, states that the species is rare in Albany county. Most of his listings are from the warmer southern portions of the State; the breeding records are from Staten and Long islands and the Genesee valley. These sight records include only two capital district dates, both from Troy, in Rensselaer county, namely, November 19, 1888, and December 3, 1890.

The 1931 Check-List of North American Birds of the American Ornithologists' Union lists the bird as occurring in the western part of New York State and in Connecticut south to the Gulf States.

Chapman (1932), in Birds of Eastern North America, designates the species as rare in Glen Ellyn and as a rare permanent resident of the Bronx region, with numerous (sight) records at all seasons and with several breeding records.

Cruickshank (1942), in Birds around New York City, reports that eggs of the barn owl have been found in every month of the year in the New York City area.

Six capital district records are at hand; the first three of these are from skins in the New York State Museum, and are as follows:

1 Accession No. 4928, a male taken June 1930, at DeFreestville, N. Y. (Rensselaer county).

2 Accession No. 5198, a female taken September 22, 1933, at noon from the ventilator of a Pullman car of the New York Central train upon its arrival at the Albany Union Station. This train was made up at Buffalo, N. Y.

3 Accession No. 6152, a female received July 22, 1940, Albany, N. Y. This bird had been captured two days earlier from the inner court of the State Capitol. It was turned over to the Humane Society. Efforts to keep it alive were not successful and the owl (which was in molt) was much emaciated when it died.

4 My late husband, Dr Dayton Stoner, and I watched a barn owl fly across the northeast section of Washington Park to the Presbyterian Church tower at twilight on August 13, 1936. The bird probably nested there as the janitor previously had reported hearing noises for some time in the tower.

5 The Albany Knickerbocker News of October 15, 1941, pictured a caged barn owl. According to the account, this bird had caused a commotion by its flight and noise on the fourth floor of a large public garage located one block from the north entrance of Washington Park. The two employes who had captured the live bird were advised by conservation officials to

release the owl as it appeared to be in good condition.

6 The earlier mentioned Slingerlands birds evidently found food and protection to their liking or else they would not have remained about the farm home for about two and one-half months.

Other Albany County dates recorded by members of the Schenectady Bird Club with Mr Bartlett are as follows: August 1, 1924, summer 1926 (breeding), July 5, 10, and September 5, 1931, summer 1933, November 1943 and September 4, 1937 (near Schenectady-Albany County line). They also have several other Rensselaer, Columbia and Schenectady County records, one of June 1944 for the region bordering Central Park in Schenectady (about 15 miles northwest of Albany). The picture of the young barn owl accompanying this article was taken on July 14, 1934, when it was about three weeks old. The photographer reported that it was reared in a pigeon loft at Chatham, about 30 miles southeast of Albany. On the same date it was also furnished with U. S. Biological Survey Band No. 4419. Although this nestling and its parents were closely associated with young pigeons, no intake of squabs was evident in the many pellets found about the nest. The queer looking face shows so well why it is nicknamed "monkey face" and also how different are its facial features from those of the pictured young northern barred owl of about the same age.

Summing up these records in the region of the capital district, I note that most of them are from July through September, but that all except one Amsterdam report of April 10, 1934, are within the months of June to December. This species is not considered a true migratory bird, but it is known sometimes to wander after the family is raised, and to visit districts immediately north and south of its breeding range. The "monkey-faced owl" occurs so seldom and so irregularly as to be considered a rare or casual resident in the Albany area, a pair or more occasionally furnishing breeding records. It has been reported here at times during the first three months of the year, but I have no definite dates for this period.

The barn, monkey-faced, monkey, white or golden owl may be recognized by its soft golden or yellowish brown upper plumage, queer face, long legs and low billowy flight. Closer examination of an individual reveals the comblike edge on the middle toe, which distinguishes it still more from other owls.

Three to five eggs a nest is the usual number; however, as many as 11 eggs in one nest have been recorded. April is generally considered the month for egg laying, but May apparently was the time for two Albany region pairs. Family life engages the parents' attention for about three months; incubation taking three to three and one-half weeks and care of the young in the nest from seven to eight weeks.

This species nests in barns, hollow trees, towers and church steeples. According to Fisher (1893), in Hawks and Owls in the United States, seven young were hatched and reared a number of years ago in one of the towers of the Smithsonian Institute in the heart of Washington, D. C.

Their intake of food is remarkable. Ornithologists quote an experiment in feeding that was tried years ago on one young caged barn owl. It gulped down nine mice, one right after the other. The results of heavy feeding for a day or longer if this rate were maintained every three or four hours would produce startling results in decrease of rodents on any farm. Since other small mammals such as rats, shrews, moles and bats are eaten, the monkey-faced owls are considered highly beneficial in any community. They are protected by state law in New York, and deserve all the protection we can give them. Their security can be maintained by the help of both adults and school children.

Native Flora on Western New York Hills

FREDERICK HOUGHTON

The Zoar Valley boasts of many beautiful wild flowers. Most of them, however, are difficult to transplant.

A MAN from New York City sat with me in a lovely garden overlooking Zoar valley in western New York. Casually he told me that he had a summer home high up in the mountains of Pennsylvania, in fact well above 800 feet in altitude. It was hard to convince him that the garden in which we sat was 500 feet higher. Like many other New York people he did not realize that western New York is a region of high hills, most of which are higher than the mountains of Pennsylvania, and which are called hills only because they are covered by farms instead of wilderness.

These hills, many 2300 feet high, provide favorable conditions for a flora approaching in characteristics the Alpine flora of the Adirondacks and form one of the three zones of western New York which differ from each other in soil conditions and consequent flora. Of these, one is characterized by calcareous soil, one by soil that is neutral in reaction, and the third, formed by the hills, by acid soil.

Photograph by Frederick Houghton

Gerardia

Based upon soil content, western New York can be divided into these three zones which stretch eastward from Lake Erie to the Genesee valley. The northern zone lies between Lake Ontario and the Onondaga limestone which stretches eastward from Buffalo to the Genesee river south of Rochester. Soil in this area is mainly calcareous, made so by the residual and glacial debris derived from the underlying limestone. Plants native there either demand or tolerate this calcareous soil.

The middle zone lies south of the first between the Onondaga limestone on the north and the sandstones and conglomerates of the Chemung formation on the south. Underlying it are soft limy shales and a few thin layers of limestone. In most parts of this zone the soil is approximately neutral in reaction.

The southern zone includes the high hills of southern New York. It begins rather vaguely in conglomerate beds near the top of the Chemung formation and is terminated by the tremendous beds of the Olean conglomerate which are so well shown at the Olean Rock City. Underlying this zone are the massive beds of conglomerate, sandstone and sandy shale of the formations above the Chemung.

Photograph by Frederick Houghton

Blucts Demand Moist, Acid Soil

The soil in this zone is mainly acid, in many places highly acid, the result of the weathering of the siliceous sandstones and conglomerates. On the hills it is usually a mixture of coarse gravelly sand and thin flakes and slabs of sandstone and shale, bound together by a stiff clay. This would seem to be a difficult environment for plants, yet the flora is abundant and varied.

The three zones merge and overlap in many places, and although the soil conditions in each zone are practically the same throughout its whole extent, in each there are areas in which different conditions exist. Thus, in the hills the soil is mainly acid, yet there are localities where the soil is neutral or in a few places calcareous, for the neutral zone is produced upward into the hills in the alluvium of the streams which drain them, and the acid zone is extended downward from the hills into the neutral zone in gravel beds, the beaches of ancient lakes, from which the lime has been leached, and in bogs and swamps. These exceptional areas are usually small, but they may support plants which differ from those which characterize the zone as a whole, and this has caused some confusion in the reports made by botanists. For instance, a Hooker's orchid, a plant which demands acid soil, has been reported from "near the Whirlpool, Niagara river," the implication being that this orchid tolerates the calcareous soil found there. It may be, however, that it was actually growing on a small area of acid soil formed by the weathering of a granitic glacial boulder. I have found the fern Asplenium, a plant of the limestone ledges, flourishing at the base of one of the hills, where the soil should have been acid. Actually the fern grew on a thin limestone layer, such as abounds in the sandstones of the Chemung.

Few of the plants of the hills are confined entirely to that zone. Many of them have found favorable conditions in the lower zones, usually in small restricted areas, on the edges of bogs, in gravel beds or in the duff under pines or hemlocks, and it is difficult to say whether a plant which tolerates the acid soil of the hills has strayed downward into the neutral zone, or whether it is a plant of the neutral zone which has climbed upward into the acid zone. There are a few, however, that are undeniably plants of the hills. For instance, mountain ash and red-berried elder are "indicator plants" of Brayton's "Canadian Transition" zone in which plants range upward from 2000 to 3700 feet in altitude. *Ilex monticola* has not been recorded below 1800 feet, and *Lycopodium annotinum* grows above 3500 feet.

Most of the plants of the hills are difficult to transplant or propagate by seeds. Their demands are simple, yet even when these are provided many still remain stubborn, and it is nearly or quite useless to collect most of them for sanctuaries.

The most beautiful of the plants of the hills belong to the heath family. All these are tolerant of acid soil or demand it, and all are difficult or impossible to transplant. Best known of the heaths is the trailing arbutus, the mayflower of the granites of New England. With us it is confined to the acid soils of the high hills, flourishing only in sterile, stony soil and refusing obstinately to grow elsewhere. I have made several attempts to get plants permanently established, all unsuccessful, although some have persisted for a few years. A well-known dealer claims that plants may be raised from seeds, but these are not easy to get. Trailing arbutus should *never* be dug until proper acid soil has been previously prepared for it, and great care must be taken in digging and transporting it.

Loveliest of the heaths is the pink azalea, which holds to the high, stony, acid slopes, preferably under oaks, yet it does equally well in acid bogs and swamps. It can be transplanted fairly successfully and it makes a delightful garden shrub.

Photograph by Frederick Houghton

Ceanothus

Two of the most beautiful of the heaths, rhododendron and mountain laurel, which are abundant on the hills south of New York, are rare on our hills. Rhododendron seems to have been eradicated on the hills though it is rather abundant in bogs and swamps at lower altitudes. Mountain laurel still clings precariously to rocky slopes in a few localities. These two handsome shrubs should *never* be dug for transplanting for they are extremely difficult to establish.

Of the smaller heaths, wintergreen and several species of blueberry can be moved safely to garden plots, where they form excellent ground cover, provided the soil is made sufficiently acid.

Besides the heaths, shrubs of other families abound on the hills, and some are confined to them. *Ilex monticola*, a deciduous holly, grows sparingly in the thin soil that covers the conglomerate blocks

at the Salamanca Rock City, and in some of the conglomerate soils of the upper Chemung. Red-berried elder is abundant on the highest hills, where in summer its brilliant berries are conspicuous and decorative. It is confined to the hills above 2000 feet in altitude, and although it has persisted in our garden for several years, it does not thrive there. Mountain ash grows into a tree of moderate size, though it usually takes the form of a tall shrub. Like the red-berried elder it is a plant of the highest hills, yet it thrives in the acid soil of swamps and bogs at lower altitudes, and it can be transplanted. Ceanothus is a tidy, low shrub that bears great quantities of white flowers. Sweet fern, which is not a fern but a shrub, rapidly invades clearings on the hill slopes and on hot summer days fills the air with its delightful odor. Both Ceanothus and sweet fern can be moved to a garden, where both are really valuable when placed in front of taller shrubs. I think of flowering dogwood as lighting up the dismal scrub pines along flooded Arkansas rivers, yet it tolerates the dry, sterile soil of our hills, where it is fairly abundant. It is a charming garden shrub widely advertised by dealers.

Most of the early spring plants of the neutral zone abound in the alluvium of the streams that drain the hills. A few, however, are confined mainly or entirely to the hills. Of the violets, only the palmate violet seems able to thrive in the acid soil on the hills. Columbine, which is characteristic of the limestone ledges, thrives also on the conglomerates. Fireweed, *Epilobium angustifolium,* which has followed the retreating glacier until it has reached the Arctic ocean, spreads rapidly with sweet fern into any clearing on the hills. The two species of lovely Gerardia which abound in the stony acid soil at the bases of the hills deserve a place in our gardens, but they refuse to be cultivated.

Two species of gentians thrive in the acid soil of the slopes. Closed gentian, both blue and white, are to be found on the conglomerates and along the bases of the hills. Both can be transplanted and they make splendid garden plants. The neat little five-flowered gentian, a miniature closed gentian, thrives lustily in moist clay and gravel along the bases of the hills. Unfortunately it is biennial or annual and can not be transplanted.

Of all the flowers of the hills, the bluets are loveliest. Individually the flowers are tiny, but they spread into wide mats of blue bloom which snuggle about huge conglomerate rocks and submerge the stubborn, rocky, sterile soil, in which they delight to dwell. They should make most delightful rock garden plants, far superior to any listed by dealers, but they are hard to establish, at least for me, though they persist and bloom a few years before vanishing.

Few orchids thrive on our hills. Moccasin flower grows with blueberries and polypodium on the conglomerates, and it certainly demands acid soil, for in lower altitudes it grows in the duff under pines and hemlocks. *Habenaria orbiculata* is fairly abundant in the alluvium of some of the streams, and the similar *H. Hookeri* seems confined to the highest, stoniest ridges under oaks. Careful search among underbrush shrouding the conglomerates will reveal colonies of the dainty *Microstylis unifolia,* the most charming of the smaller orchids. Stoutly it holds erect its three-inch stem with its one tiny leaf and its fluffy raceme of emerald green minute flowers. It can be moved successfully to similar conditions, and it is a joy, if not forever, at least for as long as it persists.

From what has been said about the plants of our hills it is apparent that they offer ample material for those botanists who are intent upon conserving our native plants in sanctuaries, but it is equally apparent that the work of collecting and colonizing them will be difficult and discouraging.

Courtesy of King Vidor

Arbor Day by Grant Wood

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